

Applicant : Gilbert Wolrich et al.  
Serial No. : 10/070,091  
Filed : February 27, 2002  
Page : 2 of 12

Attorney's Docket No.: 10559-310US1 / Intel Corporation P9631

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method of maintaining execution threads in a parallel multithreaded processor comprises:  
accessing, by an a thread executing thread in the multithreaded processor, a register set organized into a plurality of windows of registers that are relatively and absolutely addressable per thread,  
wherein accessing absolutely any one of the relatively and absolutely addressable registers comprises providing an exact address of the register, the exact address specified in an instruction associated with the thread.
2. (Original) The method of claim 1 wherein multiple threads can use the same control store and relative register locations but access different window banks of registers.
3. (Original) The method of claim 1 wherein the relative register addressing divides the register banks into windows across the address width of the general purpose register set.
4. (Original) The method of claim 1 wherein relative addressing allows access any of the window registers relative to the starting point of a window of registers.
5. (Original) The method of claim 1 further comprising:  
organizing the register set into windows according to the number of threads that execute in the processor.

Applicant : Gilbert Wolrich et al.  
Serial No. : 10/070,091  
Filed : February 27, 2002  
Page : 3 of 12

Attorney's Docket No.: 10559-310US1 / Intel Corporation P9631

6. (Original) The method of claim 1 wherein relative addressing allow the multiple threads to use the same control store and locations while allowing access to different windows of register and perform different functions.

7. (Original) The method of claim 1 wherein the window registers are implemented using dual ported random access memories.

8. (Original) The method of claim 1 wherein relative addressing allows access to any of the windows of registers relative to the starting point of the window of registers.

9. (Cancelled)

10. (Currently amended) The method of claim [[9]] 1 wherein ~~an absolute~~ the exact address of [[a]] the register is directly specified in a source field or destination field of ~~an the~~ instruction.

11. (Original) The method of claim 1 wherein relative addresses are specified in instructions as an address offset within a context execution space as defined by a source field or destination field operand.

12. (Currently amended) A hardware based multi-threaded processor comprises:  
a processor unit comprising:  
control logic including context event switching logic, the context switching logic  
arbitrating access to the microengine for a plurality of executable threads;  
an arithmetic logic unit to process data for executing threads; and  
a register set that is organized into a plurality of windows of registers that are relatively  
and absolutely addressable by an executable thread, wherein any one of the registers of the  
register set is configured to be accessed absolutely by providing an exact address of the register,  
the exact address specified in an instruction associated with the executable thread.

Applicant : Gilbert Wolrich et al.  
Serial No. : 10/070,091  
Filed : February 27, 2002  
Page : 4 of 12

Attorney's Docket No.: 10559-310US1 / Intel Corporation P9631

13. (Original) The processor of claim 12 wherein the control logic further comprises:  
an instruction decoder; and  
program counter units to track executing threads.
14. (Original) The processor of claim 13 wherein the program counters units are  
maintained in hardware.
15. (Original) The processor of claim 13 wherein the register banks are organized  
into windows across an address width of the general purpose register set with each window  
relatively accessible by a corresponding thread.
16. (Original) The processor of claim 15 wherein the relative addressing allows  
access to any of the registers relative to the starting point of a window of registers.
17. (Original) The processor of claim 15 wherein the number of windows of the  
register set is according to the number of threads that execute in the processor.
18. (Original) The processor of claim 13 wherein relative addressing allow the  
multiple threads to use the same control store and locations while allowing access to different  
windows of register and perform different functions.
19. (Original) The processor of claim 13 wherein the window registers are provided  
using dual ported random access memories.
20. (Original) The processor of claim 12 wherein the processing unit is a  
microprogrammed processor unit.

Applicant : Gilbert Wolrich et al.  
Serial No. : 10/070,091  
Filed : February 27, 2002  
Page : 5 of 12

Attorney's Docker No.: 10559-310US1 / Intel Corporation P9631

21. (Currently amended) A computer program product residing on a computer readable medium for managing execution of multiple threads in a multithreaded processor comprising instructions causing a processor to:

access, by an executing thread in the multithreaded processor, a register set organized into a plurality of windows of registers that are relatively and absolutely addressable per thread,

wherein the instructions that cause the processor to access absolutely any one of the relatively and absolutely addressable registers comprise instructions that, when executed, cause the processor to provide an exact address of the register, the exact address specified in an instruction associated with the thread.

22. (Cancelled)